

CLAIMS

1. An asphalt composition comprising:

0.5 to 50 parts by weight of a block copolymer
5 component (I) comprising at least one modified block copolymer comprising:

a base block copolymer comprising at least one vinyl aromatic polymer block (A) composed mainly of vinyl aromatic hydrocarbon monomer units and at least one 10 conjugated diene polymer block (B) composed mainly of conjugated diene monomer units, and

a modifier group bonded to said base block copolymer, said modifier group having at least one functional group,

15 said base block copolymer being unhydrogenated or hydrogenated,

100 parts by weight of an asphalt (II), and

0.01 to 10 parts by weight of at least one vulcanizing agent (III) selected from the group consisting of 20 sulfur and a sulfur-containing compound.

2. The asphalt composition according to claim 1, wherein said block copolymer component (I) is a mixture of:

25 10 to 90 % by weight of a modified block copolymer

(I-A) comprising:

a base block copolymer comprising at least two vinyl aromatic polymer blocks (A) and at least one conjugated diene polymer block (B), and

5 said modifier group bonded to the base block copolymer,

 said base block copolymer being unhydrogenated or hydrogenated; and

10 90 to 10 % by weight of at least one block copolymer selected from the group consisting of:

 a modified block copolymer (I-B) other than said modified block copolymer (I-A), which comprises:

15 a base block copolymer comprising at least one vinyl aromatic polymer block (A) and at least one conjugated diene polymer block (B), and

 said modifier group bonded to the base block copolymer,

20 said base block copolymer being unhydrogenated or hydrogenated,

 and

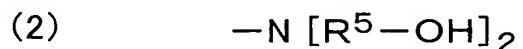
 an unmodified block copolymer (I-C) comprising at least one vinyl aromatic polymer block (A) and at least one conjugated diene polymer block (B), said unmodified block copolymer (I-C) being unhydrogenated or hydrogenated,

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wherein each % by weight is based on the weight of said mixture.

3. The asphalt composition according to claim 1 or 2,
 5 wherein said modifier group has at least one functional group selected from the group consisting of the functional groups represented by the following formulae (1) to (14):

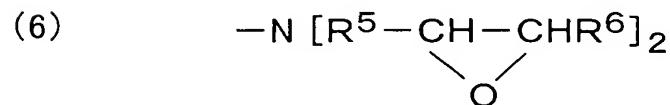
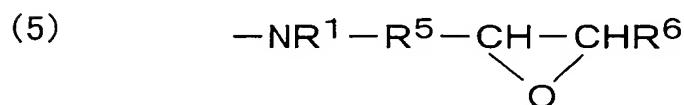
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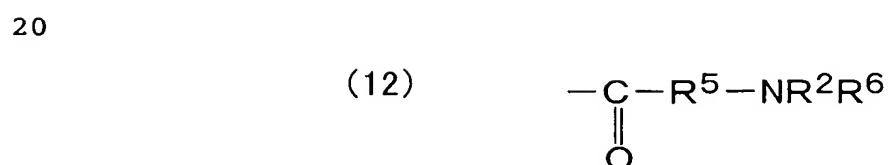
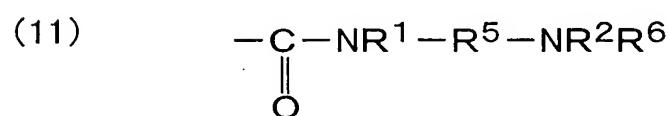
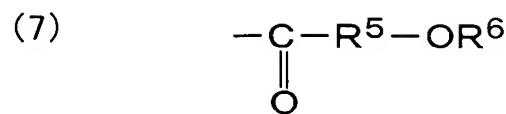
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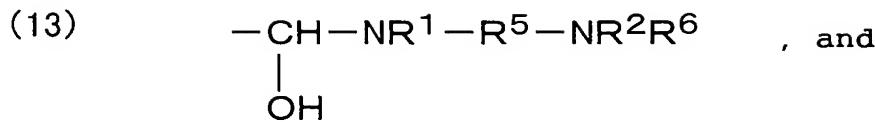
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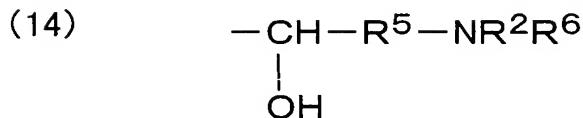
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wherein, in the formulae (1) to (14):

N represents a nitrogen atom, Si represents a silicon atom, O represents an oxygen atom, C represents a carbon atom, and H represents a hydrogen atom,

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each of R¹ to R⁴ independently represents a hydrogen atom or a C₁-C₂₄ hydrocarbon group which optionally has at least one functional group selected from the group consisting of a hydroxyl group, an epoxy group, an amino group, a silanol group and a C₁-C₂₄ alkoxy silane group,

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each R⁵ independently represents a C₁-C₄₈ hydrocarbon group which optionally has at least one functional group selected from the group consisting of a hydroxyl group, an epoxy group, an amino group, a silanol

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group and a C₁-C₂₄ alkoxy silane group, and each R⁶ independently represents a hydrogen atom or a C₁-C₈ alkyl group.

5 4. A method for producing the asphalt composition of any one of claims 1 to 3, which comprises:

10 (1) providing a living block copolymer comprising: a base block copolymer comprising at least one vinyl aromatic polymer block (A) composed mainly of vinyl aromatic hydrocarbon monomer units and at least one conjugated diene polymer block (B) composed mainly of conjugated diene monomer units, and lithium ions bonded to the terminals of said base block copolymer,

15 (2) reacting said living block copolymer with a modifier compound having or being capable of forming at least one functional group, to thereby obtain a modified block copolymer, and

20 (3) adding the obtained modified block copolymer and at least one vulcanizing agent to a molten form of an asphalt while stirring, said at least one vulcanizing agent being selected from the group consisting of sulfur and a sulfur-containing compound.

25 5. The method according to claim 4, wherein said

modified block copolymer obtained in step (2) is subjected to hydrogenation.